

## Familial Congenital Hepatic Fibrosis: Report of a Family with Three Affected Children

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**Abstract-** Congenital hepatic fibrosis (CHF) is a developmental disorder of the biliary system, characterized by defective remodeling of the ductal plate. Herein a family of three children, from consanguineous parents, with minor thalassemia is presented who suffered from congenital hepatic fibrosis (CHF). Prompt diagnosis and appropriate treatment are necessary to avoid further complications in the affected patients.

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### Introduction

Congenital hepatic fibrosis (CHF) is a developmental disorder of the portobiliary system, characterized histologically by defective remodeling of the ductal plate (DPM) (1). DPM refers the histologic changes seen in the liver of a heterogeneous group of genetic disorders, in which segmental dilation of the intrahepatic bile duct are associated with fibrosis (2). The disease could appear in both sporadic and familial patterns (3). It can happen as an isolated condition or concomitant with a wide range of disorders (4). The syndrome associated with CHF are most commonly inherited in autosomal recessive manner; however, X-linked and autosomal dominant inheritance are also observed (1). The most common presentations in these patients are splenomegaly, varices with or without gastrointestinal bleeding that are because of portal hypertension (5). Meantime hepatomegaly is also an important sign that can be detected in almost all of the patients (4); these patients have relatively well preserved liver function (1).

Symptoms and signs present so variably from early childhood to the 5<sup>th</sup> or 6<sup>th</sup> decade of life, but in most

patients the disorder is diagnosed during adolescence or young adulthood (6).

When hepatic lesions dominate the clinical expression of the disease, children who are affected may remain asymptomatic until late childhood or even adulthood (3). Coexisting renal lesions may also remain asymptomatic until early adulthood (3).

Herein a family with three affected children with CHF is presented.

### Case Report

A family with three children is presented here that were referred to the Children's Medical Center Hospital, the Pediatrics Center of Excellence, from southeastern Iran. All these children had minor thalassemia, on the basis of Hb electrophoresis. The parents of these patients were cousins; there was no history of CHF in their family.

The first patient is a 3.5 years old boy, referred to our hospital with anemia for the first time. On examination, the liver was just palpable 3 cm below the costal margin. The laboratory studies showed: AST: 38, ALT: 29, Alb: 3.6, globulin: 2.5, PT: 12, activity: 90%,

## Congenital hepatic fibrosis

Hb: 9.9, MCV: 62, HbA: 90%, HbA2: 5.2%, HbF: 3%. On abdominal sonography, increased echogenicity of liver parenchyma was in favor of CHF. Liver biopsy showed extensive fibrosis. Now, this child is 6-year old; recent endoscopy showed 3-4 rows of distal esophageal varices, on which band ligation was done.

Following confirmation of CHF, other two children were screened for this diagnosis. The first child was a 7-year old girl, who presented with hepatosplenomegaly on initial examination. Liver function tests, including AST, ALT were normal. Abdominal sonography showed coarse parenchyma of the liver, while liver biopsy showed fibrosis; grade 1 esophageal varices were reported in endoscopy. Now, she is 9-year old and on medical treatment with ursodiol and vitamin.

The third child was a 1.5-years old girl and her disease was discovered on screening. On examination, the liver was palpable 3.5 cm below the costal margin and the spleen was 2-2.5cm.

Abdominal sonography showed mild increased echogenicity of the liver. CHF was confirmed by liver biopsy.

## Discussion

CHF was first named and described in detail by Kerr *et al.* in 1961 (7). The exact incidence and prevalence are not known, while only a few hundred patients with CHF have been reported in literature so far (3). Presenting usually within the first two decades of life, the patients are generally in good health with well-preserved liver function tests (7). Although the presence of thalassemia in CHF, which were seen in all these 3 patients, is very rare, it should be a coincidental event, while different gene mutations are responsible for the diseases.

CHF is typically diagnosed by finding increased echogenicity of the liver parenchyma with or without macrocysts on ultrasound examination. Magnetic resonance imaging (MRI) including magnetic resonance cholangiopancreatography (MRCP) may also be used (1). A liver biopsy is usually required for the diagnosis of CHF, as the presence of small bile duct dilatation and proliferation would rule out other metabolic disorders of the liver (8). It is necessary to differentiate it from idiopathic portal hypertension and early liver cirrhosis (8). After a diagnosis of CHF is established, the physician must investigate for other organ systems involvements, particularly neuromuscular or renal involvement (8).

Treatment of CHF may be medical or surgical.

Medications include antibiotics (for acute and recurrent cholangitis), ursodiol, vasoconstrictors, vasopressin, somatostatin and propranolol. Portosystemic shunt surgery is the treatment of choice for these patients because the risk of postoperative hepatic encephalopathy is low. Patients also have a patent portal vein and preserved liver function (2). The prognosis may be generally improved by a shunting procedure, but survival in some patients may be limited by renal failure (2). Endoscopic variceal ligation is a useful method in primary and secondary prophylactic management of esophageal and gastric varices and to control massive life-threatening bleeding (2).

Baseline chronic anemia due to minor thalassemia in these patients may lead to some complications adversely, exacerbate the condition of the patient, and influence the outcome. More careful correction of anemia before the procedure in these patients seems reasonable. Our patients in this report showed a varied clinical picture of CHF and add further presentations to those already described.

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